WHAT IS CLAIMED IS:

1. A bearing with a noncontact signal transfer mechanism transmitting a signal from a rotary shaft to a fixed shaft, comprising:

a power generation circuit generating power between said rotary shaft and said fixed shaft, and

a signal transfer circuit transferring a signal from said rotary shaft to said fixed shaft based on the power generated by said power generation circuit.

2. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said power generation circuit comprises

an annular permanent magnet provided at said fixed shaft, and

a generator coil provided at said rotary shaft, generating power by rotating along said annular permanent magnet.

3. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said power generation circuit comprises

a power feed coil wound around a yoke provided at said fixed shaft, and

a power receiving coil wound around a yoke provided at said rotary shaft,

wherein a magnetic path is formed between the yoke of said fixed shaft and the yoke of said rotary shaft to provide a current flow to said power receiving coil.

4. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said signal transfer circuit comprises

a transmission coil wound around a yoke of said rotary shaft to transmit a signal, and

a reception coil wound around a yoke of said fixed shaft,

wherein a magnetic path is formed between the yoke of said rotary shaft and the yoke of said fixed shaft to deliver to said reception coil a signal

corresponding to the signal to said transmission coil.

5. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said signal transfer circuit comprises

a transmission coil wound around a yoke of said rotary shaft to transmit a signal, and

a magnetic detection element provided at said fixed shaft facing said transmission coil to detect change in a magnetic force of the transmission coil.

6. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said signal transfer circuit comprises

a light emitting element provided at said rotary shaft to emit light according to a signal, and

a light receiving element provided at said fixed shaft facing said light emitting element to receive light from said light emitting element.

7. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said signal transfer circuit comprises

a transmission circuit provided at said rotary shaft to transmit a signal through radio, and

a reception circuit provided at said fixed shaft to receive a signal transmitted from said transmission circuit through radio.

8. The bearing with a noncontact signal transfer mechanism according to claim 1, wherein said fixed shaft is an outer ring and said rotary shaft is an inner ring,

wherein a rolling element is provided between said outer ring and said inner ring.